

NEW RECORDS AND NEW SPECIES OF CRABS (CRUSTACEA: BRACHYURA)
TRAWLED OFF SOUTHERN QUEENSLAND: DROMIACEA, HOMOLIDEA,
GYMNOPLEURA, CORYSTOIDEA, AND OXYSTOMATA

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ABSTRACT

Twenty-seven species trawled off southern Queensland are listed and three new species belonging to the genera *Mursia*, *Ebalia*, and *Cryptocnemus* are described. Within the groups considered, offshore southern Queensland shows much greater affinity with Japan than with the adjacent shallower Moreton Bay.

While the crabs of Moreton Bay have been intensively surveyed (see Campbell and Stephenson, 1970) the area immediately outside the Bay has received little attention. Several expeditions have collected from northern Queensland (see Dall and Stephenson, 1953, p. 22) but until recently only the F.I.S. 'Endeavour' had undertaken exploratory offshore dredging and trawling in southern Queensland. From this survey, Rathbun (1923) recorded three crabs belonging to the families under consideration (see List of Species).

In July and August, 1968, the 'Nimbus' under the direction of Dr. A. J. Bruce, collected by trawl from 60 stations off southern Queensland between Double Island Point and Cape Moreton at distances of up to 40 miles offshore. The depths of the areas investigated ranged from 25 to 204 fm. The portunid crabs collected by Dr. Bruce were recorded by Stephenson and Cook, 1970, and this collection also forms the basis of the present report. This material is supplemented by collections made by Mr. D. Harris on commercial trawling grounds off Cape Moreton in 60-65 fm, by Mr. F. Wallace from off Caloundra, and by Mr. B. Beutel.

All material is housed in the Queensland Museum; station numbers refer to the 'Nimbus' 1/68 cruise; dimensions unless otherwise stated are of carapace width; all drawings were made with the aid of a camera lucida; and abbreviations are used for carapace width (cw.) and carapace length (cl.).

LIST OF SPECIES TRAWLED FROM SOUTHERN QUEENSLAND

Species in **bold face** have not previously been recorded from off the Queensland coast south of Bustard Head (24°S.) and are dealt with in this paper. In the case of species not dealt with the bracketed reference refers to a previous record from this area. Bracketed numerals and letters following all species refer to their known overall distribution using the notation listed by Campbell and Stephenson, 1970, p. 295. Species marked thus “†” were not taken in the present collections.

Tribe DROMIACEA

Family DROMIIDAE

Dromia intermedia Laurie [2, j.]

† *Dromidiopsis edwardsi* Rathbun [Rathbun, 1923, p. 145:
SE. of Double Island Pt., 33 fm] [2]

Cryptodromia areolata Ihle [4, j.]

Tribe HOMOLIDEA

Family HOMOLIDAE

Homola orientalis Henderson [2, a.j.]

Family LATREILLIDAE

Latreillia australiensis Henderson [5]

Tribe GYMNOPLEURA

Family RANINIDAE

Lyreidus tridentatus de Haan [Griffin, 1970, pp. 94–104,
figs, pl.: N. of Cape Moreton, 20–100 fm] [3, h.j.nz.]

Ranina ranina (Linnaeus) [1, a.j.h.]

Tribe CORYSTOIDEA

Family CORYSTIDAE

Gomezia bicornis Gray [2, a.j.]

Jonas leuteanus Ward [5]

Tribe OXYSTOMATA

Family DORIPPIDAE

Dorippe frascone (Herbst) [Rathbun, 1923, p. 138 (as
D. dorsipes): SE. of Double Island Pt., 33 fm] [2, a.j.]

Family CALAPPIDAE

Calappa japonica Ortman [2, a.j.]

C. philargius (Linnaeus) [Campbell and Stephenson,
1970, p. 246: Moreton Bay] [1, j.]

Mursia australiensis sp. nov.	[5]
<i>Matuta planipes</i> Fabricius [Rathbun, 1923, p. 138: off Point Inskip, 10 fm]	[2, j.]
Family LEUCOSIDAE	
Ebalia brevimana sp. nov.	[5]
E. longimana Ortmann	[4, j.]
Merocryptus lambriformis A. Milne Edwards	[3, j. nz.]
Myra kessleri (Paul'son)	[2, nc.]
<i>M. affinis</i> Bell [Campbell and Stephenson, 1970, p. 250: Moreton Bay]	[2]
Arcania (?) heptacantha (de Haan)	[2, j.]
A. undecimspinosa de Haan	[2, j.]
A. elongata Yokoya	[4, j.]
Randallia eburnea Alcock	[2, j.]
<i>Ixa inermis</i> Leach	[4]
Ixoides cornutus MacGilchrist	[2, j.]
Leucosia unidentata de Haan	[2, j.]
Cryptocnemus hemispheroides sp. nov.	[5]

Family DROMIIDAE

Dromia intermedia Laurie

Dromia intermedia Laurie, 1906, p. 351. Ihle, 1913, p. 23, pl. 1, figs. 1–3. Sakai, 1936, pp. 10–11, pl. 6, fig. 1.

MATERIAL: Female, off Caloundra, trawled, R. Elks, W3386.

This specimen agrees well with published figures and descriptions, differing only in having the anterolateral teeth of the carapace more acute and forwardly projecting.

DISTRIBUTION: From Ceylon and India to Japan and now Australia.

Cryptodromia areolata Ihle

Cryptodromia areolata Ihle 1913, p. 47, pl. 2, figs. 10–11. Sakai, 1936, p. 26, pl. 1, fig. 1; 1965, pp. 8–9, pl. 3, fig. 4. Takeda and Mijake, 1970, pp. 202–3.

MATERIAL: Female, 27°00' S., 153°39' E., trawled 100 fm, 'Nimbus' stn 26, 28.vii.1968, W3330. Male, 2 females, off Cape Moreton, trawled 65 fm, D. Harris, W3329. Female, 26°49' S., 153°37' E., trawled 100 fm, 'Nimbus' stn 19, 27.vii.1968, W3322.

DISTRIBUTION: From Timor I. (Ihle, 1913) and Japan (Sakai, 1936, 1965), and now southern Queensland; 15–100 fm.

Family HOMOLIDAE

Homola orientalis Henderson

Homola orientalis Henderson, 1888, pp. 19–20, pl. 2, fig. 1. Rathbun, 1923, pp. 143–4, pl. 37. Sakai, 1936, pp. 46–7, pl. 9, fig. 1.

Thelxiope orientalis (Henderson): Sakai, 1965, p. 15, pl. 6, figs. 3, 4 (synon.)

MATERIAL: One male, one female, 26°27' S., 153°50' E., trawled 148–9 fm, 'Nimbus' stn 55, 5.viii.1968, W3324.

DISTRIBUTION: From east Africa to the Philippines, Japan and Australia; previously within Australia from Bass Strait and Victoria; 50–300 fm.

Family LATREILLIDAE

Latreillia australiensis Henderson

Latreillia australiensis Henderson, 1888, pp. 24–5, pl. 2, fig. 4. Whitelegge, 1900, p. 165. Rathbun, 1923, pp. 139–40.

MATERIAL: Male (fragmented), two females, off Cape Moreton, trawled 65 fm, D. Harris, W3327.

DISTRIBUTION: Southeastern Australia from Bass Strait to Port Jackson and now southeast Queensland; 30–150 fm.

Family RANINIDAE

Ranina ranina (Linnaeus)

Cancer raninus Linnaeus, 1758, p. 625.

Ranina dentata de Haan, 1841, p. 139, pls. 34, 35, figs. 1–4. Haswell, 1882, p. 144.

Ranina ranina (Linnaeus): Sakai, 1937, p. 178, pl. 16, fig. 4; 1965, p. 4, pl. 2, fig. 1. Barnard, 1950, pp. 397–8, fig. 75a–d. Healy and Yaldwyn, 1970, p. 76, pl. 36.

MATERIAL: Male, between Cape Moreton and Mooloolaba, trawled, F. Wallace, W3389. Male, 8 miles SE. of Cape Moreton, W1964.

Although this species was not recorded from Moreton Bay by Campbell and Stephenson, 1970, there are several specimens in the Queensland Museum collections taken from Moreton Bay, Bribie I., and Amity.

DISTRIBUTION: From South Africa to Japan, Hawaii, and Australia. Within Australia from western, northern, and eastern Australia to southern New South Wales.

Family CORYSTIDAE

Gomeza bicornis Gray

Gomeza bicornis Gray, 1831, p. 39. Hale, 1927, pp. 145–6, fig. 147. Barnard, 1950, p. 305, fig. 57d–g.

MATERIAL: Female, between Cape Moreton and Mooloolaba, trawled, F. Wallace, W3390. Female, 5–6 miles E. of Pt Cartwright Light, trawled 19–21 fm, sand, coral and shell, 6.iii.1970, F. Wallace, W3391.

DISTRIBUTION: From South Africa to Ceylon, Japan, and within Australia from South Australia and southeast Queensland.

Jonas leuteanus Ward

Jonas leuteanus Ward, 1933, pp. 379–80, pl. 23, fig. 8.

MATERIAL: Female, 5–6 miles E. of Pt Cartwright Light, trawled 19–21 fm, sand, coral and shell, 7.iii.1970, F. Wallace, W3392.

DISTRIBUTION: Lindeman I., Cumberland Group, Queensland (type locality) and southeast Queensland.

Family CALAPPIDAE

Calappa japonica Ortmann

Calappa japonica Ortmann, 1892, p. 566, pl. 26, fig. 8. Sakai, 1937, p. 96, pl. 18, fig. 4; 1965, p. 57, pl. 23, fig. 1. Barnard, 1950, pp. 352–3, fig. 66 n–p.

Calappa exanthematos Alcock and Anderson, 1894, pp. 177–8. Alcock, 1899, pp. 21–2.

MATERIAL: Male, off Cape Moreton, trawled 70 fm, B. Beutel, March 1966, W2414. Female, off Cape Moreton, trawled 65 fm, D. Harris, W3362 (dry coll.).

DISTRIBUTION: South Africa to India, Japan, and now Australia; 17–70 fm.

Mursia australiensis sp. nov.

(Fig. 1; pl. 2A, B)

Mursia armata de Haan: Whitelegge, 1900, pp. 160–1.

[non] *Mursia armata* de Haan, 1837, p. 73, pl. 19, fig. 2.

[?] *Mursia spinimanus* Rathbun: Rathbun, 1911, p. 198, pl. 15, fig. 3.

[non] *Mursia spinimanus* Rathbun, 1906, p. 888, pl. 16, fig. 1.

HOLOTYPE: Male, 26 mm cl., 42.8 mm cw. including spines, 31 mm cw. excluding spines, off Cape Moreton, trawled, April 1964, D. Harris, W2379.

PARATYPES: Two males, 21, 22 mm cl., 26°31' S., 153°40' E. (c. 30 miles NE. of Caloundra), trawled 75.5 fm, 'Nimbus' stn 10, 26.vii.1968, A. J. Bruce, W3297. Male, 25.5 mm cl., 26°48' S., 153°32.5' E. (c. 20 miles E. of Caloundra), trawled 55 fm, 'Nimbus' stn 17, 27.vii.1968, A. J. Bruce, W3298. Three males, 24, 25, 29 mm cl., 18 miles N. of Cape Moreton, trawled 62-5 fm, sand and shell, FV 'Gemini', 19-20.iii.1970, F. Wallace, W3299. Three males, 28-29 mm cl., off Cape Moreton, trawled 65 fm, D. Harris, W3300 (dry coll.). Ten males, 16.5-27.5 mm cl., female, 23 mm cl., off Cape Moreton, trawled 65 fm, D. Harris, W3301.

DESCRIPTION

Carapace broader than long (cw. excluding lateral spines 1.15 to 1.18 times cl. in males, 1.13 times in only available female); coarsely granulate over entire surface (except frontal region which is less distinctly granulate) with 7 rows of tubercles radiating backwards from behind fronto-orbital region; front narrow (5.4-5.9 times in cl., 2.5-2.8 times in fronto-orbital width), three lobed, middle lobe projecting well forward of lateral lobes variably separated from the lateral lobes (see fig. 1c); anterolateral margins very convex, sub-parallel in posterior fifth, with some ten distinct sharp granules decreasing in size posteriorly; lateral spine moderately long (3.4-4.2 times in cl. in males, 4.75 times in female), slender, directed slightly posteriorly (posterior margin of spine lies in front of a line joining tips of spines), curved markedly or only slightly upwards (maximum of c. 30° to horizontal in posterior view, almost horizontal in female); posterolateral margins slightly shorter

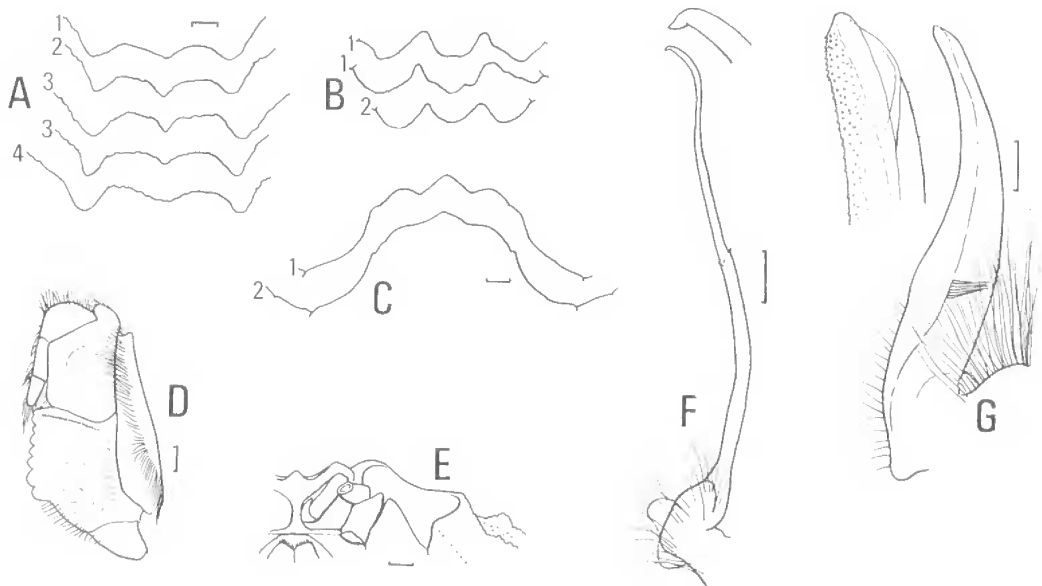


FIG. 1: *Mursia australiensis*. A-C, variation in posterior carapace margin (A), abdominal crest (B), and front (C); D, third maxilliped; E, ventral view of front and orbit; F, second (right) male pleopod; G, first (right) male pleopod.

Specimens illustrated: A-C, 1 = W3298, 2 = W3301, 3 = W3299, 4 = W3300; D-G, holotype. Scale divisions 1 mm.

than or subequal to anterolateral margins; posterior margin short (4.6–5.4 times in cl.), with three spines of which the laterals are largest (larger than anterolateral spinules) the median varying from only slightly smaller than the laterals to a low obtuse protrubence.

Inner suborbital lobe triangular, with outer margin straight; separated from outer orbital cup by a V-shaped sinus.

Merus of cheliped with three spines distally, the upper smallest but always distinct (larger than anterolateral spinules), the lower largest (at least 2/3 lateral spine). Upper face of wrist and outer face of chela coarsely granulate; outer face of chela with 9 tubercles in 3 rows and 3 further tubercles near base of dorsal serrate crest; lower row with proximal tubercle very acute and highest (triangular with concave sides), second tubercle lower and broader based (triangular with convex sides), distal tubercle low, rounded, and granulate; lower margin of chela finely serrate, becoming coarser distally; inner face of dactyl with row of some 25–30 stridulatory tubercles becoming smaller proximally and distally.

Ambulatory legs long (first leg 1.5–2.1 times cl.).

Abdomen of both sexes with three subequal flattened lobes on second segment well separated by V- or U-shaped sinus and with finely granulate margins. Penultimate segment of male abdomen as long as wide, lateral margins subparallel but slightly sinuous with slight protruberences at latero-distal angles; ultimate segment longer than wide, triangular, with slightly concave lateral margins.

First male pleopod stout, evenly tapering to a blunt tip, with fine spinules distally. Second male pleopod long, slender, with distal third abruptly narrower, horny, sinuous, with extreme tip conical, pointing laterally.

Colour, after alcohol preservation, pale biscuit with varying amount of rose pink on carapace sometimes concentrated in granules and often darker towards the lateral spines, on the frontal region, and in the upper outer face of the chelae. Inner face of chelae with darker red patch at base of dactyl.

DISCUSSION

Sakai (1965, pp. 51–5) lists the 7 known Indo-Pacific species and subspecies of this genus and describes or figures 5 of these.

M. armata differs from other species, including the present one, in having the anterolateral carapace margins only slightly convex, the lateral teeth more than half the carapace length. In *M. curtispina*, *M. trispinosa*, *M. aspera*, and *M. hawaiiensis* the second male pleopod is considerably recurved distally, forming a complete loop in *M. trispinosa*. In the

present species the second pleopod is slightly undulating distally, outcurved at the tip. The ornamentation of the outer face of the chela of the present species differs markedly from Sakai's figures (fig. 8a–d) of these four species.

M. bicristimana Alcock and Anderson (see Alcock, 1899, pp. 23–4, pl. 3, fig. 3) differs from *M. australiensis* in having 2, not 3, teeth on the posterior carapace margin, the lateral carapace teeth forwardly directed; the three lobes of the second abdominal segment barely separated by narrow grooves, the median lobe much wider than the laterals; and the three ventral teeth of the outer face of the chela joined by a crest.

M. spinimanus differs in having the posterolateral margins of the carapace much more convergent posteriorly, the surface of the carapace less distinctly tuberculate and more finely granulate, the carapace broader (cw. 1.3 times cl.) and the suborbital notch V-shaped. Rathbun (1911, p. 198) identified a small female from Saya de Malha (Indian Ocean) as *M. spinimanus*. This specimen differs from *M. spinimanus* in granulation and tuberculation of carapace and in carapace shape. It is tentatively placed in synonymy with the present species, the only difference observable from Rathbun's figure (pl. 15, fig. 3) being the straight (as opposed to slightly curved) lateral carapace teeth.

M. australiensis is closest to *M. curtispina* Miers but comparison with Miers's figure and description (1886, pl. 24, fig. 1, pp. 291–2) shows the following differences:

- (1) Miers's figure shows a much broader front (3.75 times in cl. as against 5.4 to 5.9 times in *M. australiensis*).
- (2) The lateral carapace spines are shorter in Miers's figure (6 times in cl. as against 3.4 to 4.7 times in *M. australiensis*) and are not obliquely directed backwards.
- (3) The suborbital notch is narrow and V-shaped in Miers's fig. 2a. In *M. australiensis* it is broadly V-shaped and the suborbital tooth is triangular.
- (4) The teeth on the posterior carapace margin are smaller and more widely separated in Miers's figure, the posterior margin is shorter (3.9 times in cl. as against 4.6 to 5.4 times in *M. australiensis*).

Sakai (1965) has compared Miers's holotype with specimens from Japan but although he identifies the Japanese specimens with Miers's species his figure (pl. 21, fig. 2) shows the following differences from that of Miers.

- (1) Front 5.0 times in cl.
- (2) Lateral carapace spines 4.6 times in cl.
- (3) Posterior surface of carapace indistinctly granulate.
- (4) Posterior margin of carapace shorter (4.9 times in cl.).

These differences could be due to subspecific variation within *M. curtispina* or to inaccuracies in Miers's illustration.

The Japanese specimens described by Sakai differ from *M. australiensis* in the following particulars:

- (1) Front 5.0 times in cl. as against 5.4–5.9 times.
- (2) Posterior surface of carapace indistinctly granulate.
- (3) Posterior carapace teeth smaller and more widely separated.
- (4) Two distal spines of lower series of outer face of chela are more acute and more prominent.
- (5) The second male pleopod is strikingly recurved distally.
- (6) The lateral carapace spines are less obliquely directed backwards.

Until material from a wider range of localities throughout the central Indo-west Pacific is compared, and the presence or absence of intergradation between Japanese and Fijian *M. curtispina* and *M. australiensis* is demonstrated it could be considered that the latter is best regarded as a subspecies of the former. The decision to treat *M. australiensis* as specifically distinct was based, in part, on the degree of difference which exists between the five species of *Mursia* recorded by Sakai (1965) as occurring together in Japan. Although two of these (*M. trispinosa* Parisi and *M. hawaiiensis* Rathbun) were regarded by Sakai as subspecies of *M. curtispina*, their coexistence without apparent intergradation requires their recognition as distinct species. The differences between these five species in such features as carapace shape, chela ornamentation and second male pleopod configuration are no greater than the differences between *M. australiensis* and *M. curtispina* listed above.

Family LEUCOSIDAE

***Ebalia brevimana* sp. nov.**

(Fig. 2A–H; pl. 3A)

HOLOTYPE: male, cw. 8.4 mm, 26°27' S., 153°50' E., trawled 148 fm, 'Nimbus' stn 55, 5.viii.1968, A. J. Bruce, W3395.

DESCRIPTION

Carapace slightly longer than broad (cl. 8.6 mm, cw. 8.4 mm) with regions indistinctly defined by shallow grooves, with six tubercles disposed as in figure 2A (one intestinal, one cardiac, two branchial and two gastric); hepatic regions with low rounded swelling overlying the small anterolateral tooth; branchial regions swollen, rounded, giving the carapace an

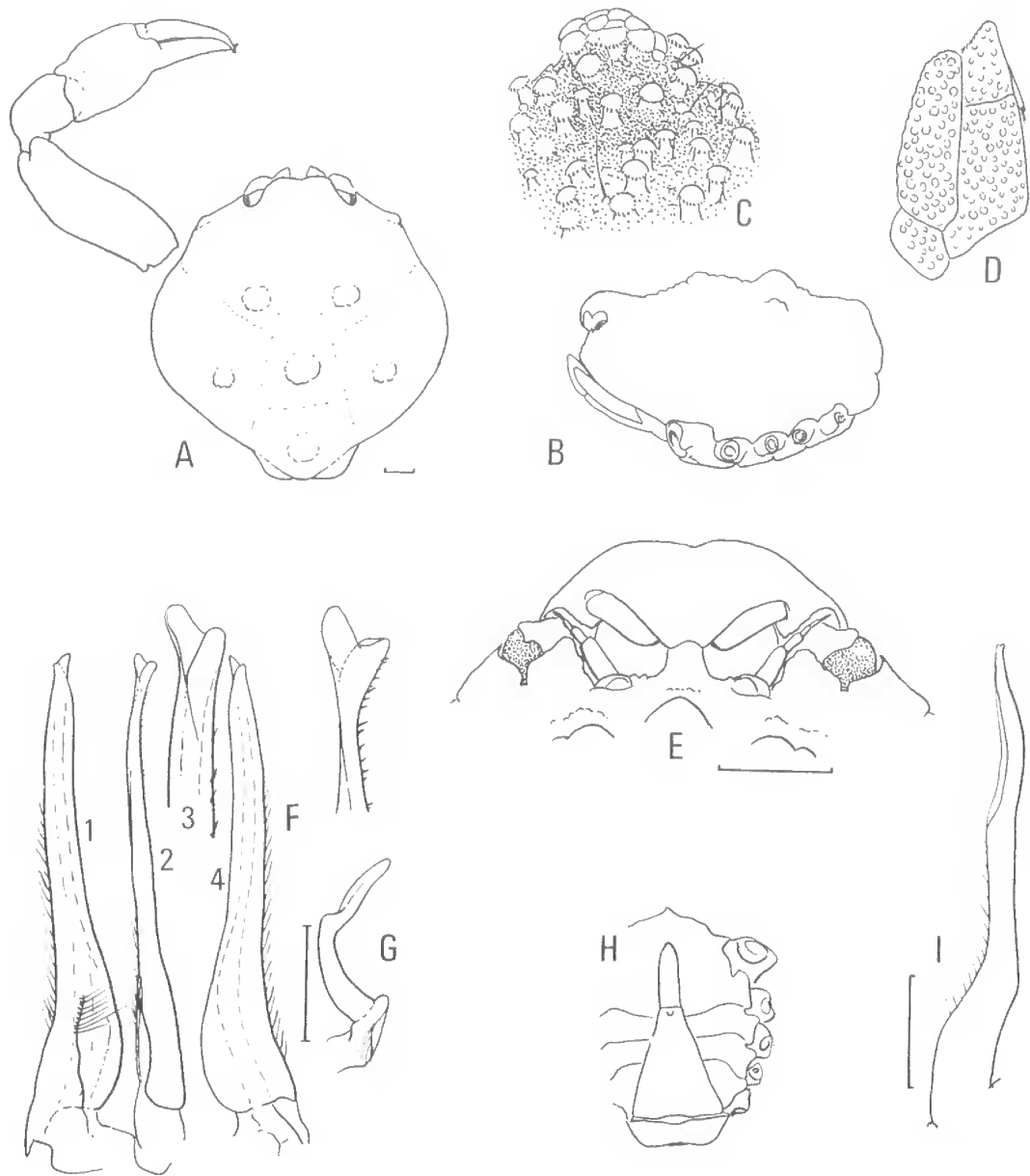


FIG. 2: A–H. *Ebalia brevimana*, holotype. A, carapace, dorsal view; B, carapace, lateral view; C, mushroom-shaped granules on carapace; D, third maxilliped; E, front; F, first male pleopod (1, abdominal face; 2, median face; 3, median face; 4, sternal face; 5, left pleopod in situ, latero-abdominal face); G, second male pleopod; H, male abdomen. Scale divisions 1 mm.
I, male pleopod, *E. tuberculosa*, 8.5 mm cw., Aust. Mus. P5524.

almost circular outline in dorsal view; front with two rounded lobes separated by shallow median depression; frontal lobes very rounded in lateral view; posterior margin with two rounded lobes laterally, little wider than frontal lobes, shallowly separated by the concave posterior margin which is partly obscured in dorsal view by the large intestinal protruberance. Surface of carapace with large scattered fimbriate mushroom-like granules which are confluent on the larger carapace tubercles, interspersed with fine scattered hairs on low granules.

Chelipeds short, 1.25 times carapace length, propodus as long as merus, dactylus only slightly shorter than palm, length of palm *c.* 1.5 times height. Surface of all segments smooth, formed by confluent discoid fimbriate tubercles. Both fixed and movable fingers with thin keel on outer edges, more prominent on third finger; and with raised longitudinal row of granules extending to hooked tips; teeth fine, interlocking distally with narrow gape proximally. Male abdomen with first and second segments distinct; third to sixth fused, with sharp spinous tubercle distally; seventh segment elongate, with lateral margins sub-parallel for most of their length, tip paraboloid.

Third maxilliped merus approximately half total length of ischium, *c.* 0.65 times marginal length. Maxillipeds (and whole ventral surface) covered with mushroom-shaped granules not elongated into spines anteriorly. First male pleopod with almost straight shank, tapering evenly, and flattened distally proximal to the asymmetrically bilobed aperture; with moderate setae on the lateral face and very short setae distally on the sternal face. Second male pleopod short, with terminal process almost as long (*c.* 0.9 ×) as shank.

Colour, after alcohol preservation, faded to pale biscuit with few small pale orange spots scattered on carapace.

DISCUSSION

This species, with its six dorsal carapace tubercles, is close to *E. tuberculosa* (A. Milne Edwards) (see Haswell, 1880, p. 54, pl. 6, fig. 3, as *Phlyxia granulosa*; Miers, 1886, p. 306, pl. 25, figs. 1, 1a; Hale, 1927, p. 197, fig. 198; Rathbun, 1923, p. 134, pl. 35, figs. 1–2; Sakai, 1937, pp. 111–2, fig. 11a–d; 1965, p. 28, pl. 13, fig. 2; Barnard, 1950, p. 368, figs. 70h–k; Takeda and Mijake, 1970, pp. 211–2 (synon.)). It differs from that species in the following particulars.

- (1) Carapace more rounded in dorsal view, front less produced (variable in *E. tuberculosa* but not as in present species, see Barnard, 1950, and compare Sakai, 1965 with Miers, 1886).
- (2) Posterior carapace lobes indistinctly separated, with intestinal prominence overlapping posterior margin in dorsal view (variable in *E. tuberculosa* but not approaching present species; compare Sakai, 1965, with Hale, 1927).

- (3) Chelipeds are shorter, chelae shorter in relation to finger length and to height of chelae (variable in *E. tuberculosa* but not approaching present species; compare Sakai, 1937, with Miers, 1886, Hale, 1927, Sakai, 1965).
- (4) Male abdomen with sixth segment fused to preceding segments, with tubercle on sixth segment. (Sakai, 1937, and Barnard, 1950, fig. j (side view) show distinct sixth segments whereas Haswell, 1880, and Barnard, 1950, fig. j (ventral view) show fused segments. Sakai and Barnard show a tubercle on the posterior margin of the seventh segment. Haswell shows one on the sixth segment. While Barnard's ventral view figure is obviously in error (see also Stebbing, 1920, pl. 26a; 1921, pl. 18a) Haswell's figure suggests a close agreement in this feature with the present species although in all other respects his figure represents typical *E. tuberculosa*. The type material of Haswell's *Phlyxia granulosa* consists of four dried specimens mounted on glass plates. Dr D. J. G. Griffin of the Australian Museum, Sydney, reports that the abdomen of the single male can not be examined because of the mounting medium; that these specimens appear to be conspecific with specimens of *E. tuberculosa* from the same locality (off Sydney) in which the abdominal formula of males is $1 + 2 + R + 6 + T$; and that the type specimens are not conspecific with the present species. It would appear that Haswell's drawing of the male abdomen is incorrect).
- (5) First male pleopod with straight, evenly tapering shaft, with bilobed tip. (Sakai, 1937, and Barnard, 1950, illustrate male pleopods of specimens of *E. tuberculosa* from Japan and South Africa respectively. These agree essentially with each other and with specimens of *E. tuberculosa* from off Botany Bay, N.S.W., illustrated in fig. 21).

E. salamensis Doflein, 1904; *E. japonica* Rathbun, 1932; *Nursia scandens* Stebbing, 1920; and *N. postulans* Stebbing, 1921, have been synonymised with *E. tuberculosa* (see Sakai, 1965). Examination of the original descriptions of these nominate species show that they do not belong to the present species and are correctly synonymised with *E. tuberculosa*.

***Ebalia longimana* Ortmann**

(Fig. 3)

Ebalia longimana Ortmann, 1892, p. 578, pl. 26, fig. 13. Sakai, 1937, pp. 109-11, fig. 10, pl. 13, fig. 6; 1965, pp. 29-30, pl. 13, figs. 5, 6 (synon.).

MATERIAL: male, 4.5 mm cl., with deformity of left branchial region, 26°30' S., 153°44' E., trawled 100 fm, 'Nimbus' stn 49, A. J. Bruce, 30.vii.1968, W3396.

This small specimen agrees well with figures and descriptions of Ortmann and Sakai, differing in having the male pleopods less slender, the chelipeds shorter than in Sakai's

illustration of male specimens, approaching those of the illustrated female (Sakai, 1965, pl. 13, fig. 6). Both differences are considered due to the smaller size of this individual.

DISTRIBUTION: Previously recorded only from Japan.

***Merocryptus lambriformis* A. Milne Edwards**

Merocryptus lambriformis A. Milne Edwards, 1873, p. 85, pl. 13, figs. 1–1c. Whitelegge, 1900, p. 162
Rathbun, 1923, p. 133, pl. 32, figs. 2, 3. Sakai, 1937, pp. 113–4, pl. 13, fig. 7; 1965, p. 30, fig. 30,
pl. 14, figs. 1, 2. Serène, 1955, p. 145, figs. 1, 2. Bennett, 1964, p. 22, fig. 103.

MATERIAL: Male, 26°49' S., 153°37' E., trawled 100 fm, 'Nimbus' stn 19, 27.vii.1968, W3353. Female, off Cape Moreton, trawled, 22.vii.1965, B. Beutel, W2255.

DISTRIBUTION: Japan to Samoa, Australia, and New Zealand. Within Australia from the Great Australian Bight, Bass Strait, Port Hacking, Crowdy Head, and now Queensland; 22–120 fm.

***Myra kessleri* (Paul'son)**

Callidactylus kessleri Paul'son, 1875, p. 80.

Myra kessleri (Paul'son): Ihle, 1918, p. 260 (synon.). Tyndale-Biscoe and George, 1962, p. 89, figs. 7, 9.

Myra darnleyensis Haswell, 1880, p. 52, pl. 5, fig. 4.

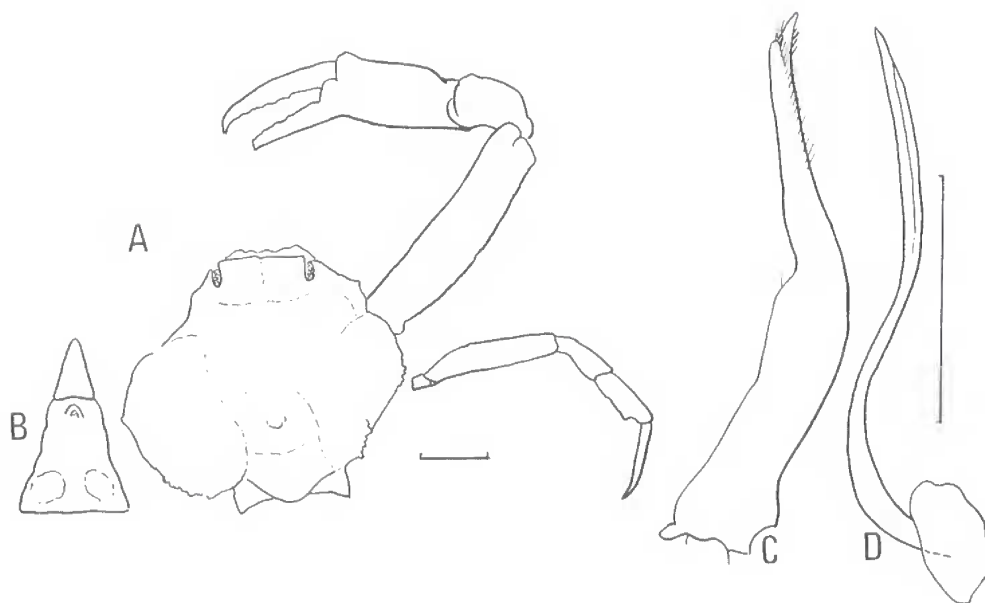


FIG. 3: *Ebalia longimana*. A, carapace; B, male abdomen; C, first male pleopod; D, second male pleopod. Scale divisions 1 mm.

MATERIAL: Male, 25°01' S., 153°30' E., 29 fm, Bureau of Mineral Resources stn 1377, W3384.

DISTRIBUTION: From Red Sea (Paul'son 1875) and Seychelles to Indonesia, Australia, and New Caledonia. Previous Australian records are from Dampier Archipelago (Western Australia) and Torres Strait (fide Tyndale-Biscoe and George, 1962).

Arcania (?) *heptacantha* (de Haan)

(Pl. 3B)

Iphis heptacantha de Haan, 1861, p. 27.

Arcania heptacantha (de Haan): de Man, 1907, pp. 398–9, pl. 31, figs. 8–10. Sakai, 1937, pp. 126–7, fig. 18; 1965, p. 41, pl. 16, fig. 6.

MATERIAL: Female, 26°30' S., 153°15' E., trawled 26 fm, 'Nimbus' stn 8, 26.vii.1968, W3359. Female, Arnhem Bay, Northern Territory, 10 fm, sand and mud bottom, V. Wells, W2604.

Published figures and descriptions demonstrate some confusion as to the relative status of *A. heptacantha* and *A. septemspinosa* (Fabricius). De Man (1907, pp. 398–9) in attempting a comparison could only suggest that the relative lengths of carapace spines (although shown to be variable by Alcock), and perhaps the depth of the groove separating branchial from cardiac and intestinal regions, were the most likely features that could be used to distinguish the two species. Rathbun (1910, p. 314) described her *A. siamensis* (synonymised with *A. heptacantha* by Sakai, 1937, 1965) as differing from *A. septemspinosa* (which she recorded from the same locality) in having the carapace more subglobular, the branchial regions more swollen, and the marginal spines shorter than in *A. septemspinosa*.

Barnard (1950, p. 385, fig. 71, 71f, g) describes and illustrates specimens which, although he identifies them as *A. septemspinosa*, have short carapace spines. Barnard's specimens are also unusual in having the lateral spines situated on the posterior third of the carapace, the lower posterior spines very close together under the base of the median posterior spine, and the anterolateral margins straight or almost concave. The four very short posterolateral spines of Barnard's illustration bear no resemblance to the long spines figured for *A. septemspinosa* by Sluiter (1881, fig. 1) and by Herbst (1790, pl. 20, fig. 112).

The Australian specimens can not be satisfactorily fitted into the variation shown by these (or this) species without detailed comparisons of material from a range of localities throughout the Indo-Pacific area. They appear closest to *A. heptacantha* as figured by Sakai (1937, 1965) but differ from his specimens in having the lateral carapace spines reaching to the end of the ambulatory meri, the front narrower and more anteriorly projecting (well forward of the lateral pterygostomial spines), and the carapace regions less distinctly marked.

DISTRIBUTION: *A. heptacantha* from the Gulf of Thailand to Japan, and now Australia. *A. septemspinosa* from South Africa (? identity) to India and Hong Kong.

Arcania undecimspinos de Haan

Arcania undecimspinos de Haan, 1841, p. 135, pl. 33, fig. 8. Sakai, 1937, p. 123, fig. 15a, pl. 14, fig. 2; 1965, p. 40, fig. 6a, pl. 16, fig. 3.

Arcania granulosa Miers, 1877, p. 240, pl. 38, fig. 29.

MATERIAL: Two males, female, off Cape Moreton, trawled 65 fm, D. Harris, W3348 (dry collection). Two males, 26°31' S., 153°43' E., trawled 100–102 fm, 'Nimbus' stn 11, 26.vii.1968, W3358. Four males, two females, off Cape Moreton, trawled 65 fm, D. Harris, W3352. Two females, off Cape Moreton, trawled, B. Beutel, 22.vii.1965, W2256. Female, 26°49' S., 153°35' E., trawled 75 fm, 'Nimbus' stn 18, 27.vii.1968, W3360. Female, 26°49' S., 153°37' E., trawled, 100 fm, 'Nimbus' stn 19, 27.vii.1968, W3356. Male, off Caloundra, trawled, R. Elks, W3349.

DISTRIBUTION: India to Japan and Australia. Previously recorded from Australia by Miers (1877) from 'Moreton B.', but not recorded from within the bay by Campbell and Stephenson, 1970.

Arcania elongata Yokoya

Arcania undecimspinos elongata Yokoya, 1933, p. 132, fig. 47. Sakai, 1937, p. 124, figs. 15b, 16; 1965, pp. 40–1, fig. 6b, pl. 16, fig. 2.

MATERIAL: Female, 26°30' S., 153°15' E., trawled, 26 fm, 'Nimbus' stn 8, 26.vii.1968, W3358. Male, southern Queensland, E. C. Vallis, W3347 (dry collection).

These specimens differ from *A. undecimspinos* in all features mentioned by Sakai (1937, pp. 124–5; 1965, pp. 40–1), approaching *A. novemspinos* in many respects but differing from that species in the sharper granulation (spinulation) of the carapace, more elongate carapace, smaller marginal spines, less projecting front (which is finely spinulate not granulate), absence of prominent proximal spine on posterior margin of arm of cheliped.

In view of the constancy of the distinguishing features over such a wide geographic range *A. elongata* must be given full specific status.

DISTRIBUTION: Previously known only from Japan (Sakai, 1965).

Randallia eburnea Alcock

Randallia eburnea Alcock, 1896, p. 196. Sakai, 1937, pp. 132–3, fig. 22; 1965, p. 42, pl. 17, fig. 1. Tynedale-Biscoe and George, 1962, pp. 87, 94.

MATERIAL: Male, 30 miles due E. of Mooloolaba, 69–70 fm, R. Elks, W2849. Female, 26°31' S., 153°33' E., trawled 56 fm, 'Nimbus' stn 9, 26.vii.68, W3355. Female, 26°49' S., 153°35' E., trawled 75 fm, 'Nimbus' stn 18, 27.vii.1968, W3354. Six males, southeast Queensland, trawled, D. Harris, W3344 (dry collection). Female, off Caloundra, trawled, R. Elks, 13.viii.1967, W3350. Two males, female, 28 miles N. of Cape Moreton, trawled 62–5 fm, sand and shell, F. Wallace, 7.iv.1970, W3364. Male, 18 miles N. of Cape Moreton, trawled 62–5 fm, sand and shell, F. Wallace, 19.iii.1970, W3368. Male, 5 females, off Cape Moreton, trawled 65 fm, D. Harris, W3380.

These specimens agree with those of Tyndale-Biscoe and George in that the distal third of the first to third dactyls have long hairs and the tooth on the penultimate segment of the male abdomen is well developed. They differ, agreeing with Ihle's description, in having the fused 3rd to 6th abdominal segments all clearly recognisable.

DISTRIBUTION: From India and the Laccadives to Japan, Western Australia, and now Queensland; 15–80 fm.

***Ixa inermis* Leach**

Ixa inermis Leach, 1817, p. 26, pl. 129, fig. 2. Haswell, 1880, p. 59. McNeill, 1942, p. 430; 1968, p. 40. Holthuis and Gottlieb, 1956, pp. 291–6, pl. 5, fig. 1. Healy and Yaldwyn, 1970, p. 82, fig. 43.

[non] *Ixa inermis* Leach: Alcock, 1896, pp. 272–3.

MATERIAL: Male, 26°45' S., 153°21' E., trawled 25 fm, 'Nimbus' stn 16, 27.vii.1968, A. J. Bruce, W3397. Male, off Cape Moreton, trawled 65 fm, D. Harris, W3398. Male, female, off Cape Moreton, trawled 65 fm, D. Harris, W3399 (dry collection). Male, 6 miles NE. of Caloundra Light, trawled 21 fm, sand and shell, 27.ii.1970, F. Wallace, W3374. Female, 6–7 miles NE. of Caloundra Light, trawled 22 fm, sand and shell, 3.iii.1970, F. Wallace, W3373. Female, Hervey Bay, Capt. Hoult, G646.

DISTRIBUTION: From the Malay Archipelago and Australia. Previously within Australia from Thursday Island, Low Isles, Cape Grenville, Port Denison, and off Tin Can Bay, 25 fm.

***Ixoides cornutus* MacGilchrist**

Ixoides cornutus MacGilchrist, 1905, p. 255. Sakai, 1937, pp. 137–9, pl. 19, figs. 1–4; 1965, p. 44, pl. 18, fig. 3.

MATERIAL: Five males, off Cape Moreton, trawled, D. Harris, W3343 (dry collection). Male, female, off Cape Moreton, trawled 65 fm, D. Harris, W3361. Male, female, off Cape Moreton, trawled, B. Beutel, 22.vii.1965, W2257. Male, 28 miles N. of Cape Moreton, trawled 62–5 fm, sand and shell, F. Wallace, 7.iv.1970, W3365. Male, female, 18 miles N. of Cape Moreton, trawled 62–5 fm, sand and shell, F. Wallace, 18.iii.1970, W3369.

DISTRIBUTION: From the Iranian Gulf to Hong Kong and Japan (Sakai, 1965), and now eastern Australia.

***Leucosia unidentata* de Haan**

Leucosia unidentata de Haan, 1841, p. 133, pl. 33, fig. 3. Haswell, 1882, p. 118. Alcock, 1896, pp. 215–6. Sakai, 1937, p. 146, fig. 286, pl. 15, fig. 4; 1965, pp. 47–8, pl. 19, fig. 3.

MATERIAL: Female, 18 miles N. of Cape Moreton, trawled 62–5 fm, sand and shell, F. Wallace, 19.iii.1970, W3367. Female, 28 miles N. of Cape Moreton, trawled 62–5 fm, sand and shell, F. Wallace, 7.iv.1970, W3366. Male, 26°31' S., 153°33' E., trawled 56 fm, 'Nimbus' stn 9, 26.vii.1968, W3378. Male, 26°17' S., 153°42' E., trawled 47 fm, 'Nimbus' stn 2, 25.vii.1968, W3383. Female, 26°48' S., 153°32.5' E., trawled

55 fm, 'Nimbus' stn 17, 27.vii.1968, W3379. Male, off Caloundra, trawled, R. Elks, W3377. Male and female, off Cape Moreton, trawled 65 fm, D. Harris, W3376. Fifteen males, five females, trawled off southern Queensland, D. Harris, W3388 (dry collection).

Alcock's description and Sakai's figures indicate that the posterior margin of the carapace is very convexly rounded. While this is true in the females of the present series, in the males this margin is concave, with two slight, well rounded lobes laterally. The pleopods agree well with Sakai's (1937, fig. 28b) illustration except that the distal bristles are much longer (as long as the terminal projection) and the three spirals of the shaft of the pleopod are not as distinctly divided to form six as in Sakai's figure.

DISTRIBUTION: From India to Hong Kong, Japan, Molluccas, Torres Strait, and now southern Queensland.

***Cryptocnemus hemispheroides* sp. nov.**

(Fig. 4; pl. 3C)

HOLOTYPE: female, 8 mm cw., 26°27' S., 153°50' E., trawled 148 fm, 'Nimbus' stn 55, 5.viii.1968, W3363.

DESCRIPTION:

Carapace broader than long (cw. = 8 mm, cl. = 7.1 mm), smooth, dorsally rounded, without ridges or granules on the dorsal surface; margins of carapace with lamellate expansions originating at a distinct tooth on the anterolateral margin, increasing in width posteriorly, edge composed of straight lines which meet to form distinct angles laterally, posterolaterally and at each side of the slightly concave posterior margin.

Front markedly produced, deeply divided into two slightly upturned lobes separated by U-shaped sinus in dorsal view; small but distinct subsidiary lobes halfway along length of median margins of frontal lobes.

Median portion of front between frontal lobes markedly depressed to meet epistome, separating antennular fossae which extend well up under frontal lobes; antennular fossae separated from orbits by second segment of antennae; suborbital lobe large.

Anterior extremity of buccal cavern reaches well beyond anterior extremity of pterygostomian region. Merus of third maxilliped much shorter than ischium.

Chela approx. 1.6 times cw. Merus flattened in proximal half with thin flat laminate carinae on both margins, trigonal in distal half with thin carinae on all three margins; carpus trigonal with broadly lamellate carina on outer margin, ridge ending in small distal

tooth on upper inner margin, low ridge ending in larger tooth on lower inner margin; propodus flattened, with broad lamellate carina on outer margin and on inner margin extending along edge of fixed finger decreasing in width to near the tip; dactylus as long as propodus excluding fixed finger, with lamellate carina on outer margin decreasing in width to near the tip; cutting edges of fingers with series of low teeth with larger ones interspersed at regular intervals, these latter increasing in size towards the tip on the fixed finger, subequal on the dactylus.

Walking legs decreasing in size posteriorly; merus and propodus flattened, with lamellate carinae on both margins; carpus of first two legs with broad carina on outer margin, of last two legs with two carinae, one on outer margin, one on posterior (upper) face; dactyl very thin, styliform.

Abdomen of female with free segment followed by four discernable segments fused in a circular plate, with terminal segment free, triangular, longer than broad.

Colour, after alcohol preservation, pale, with pale pink-orange spots, one in middle of posterior margin, two posteriorly on dorsal surface with indistinct broken band running anterolaterally from these towards the anterolateral teeth; small white speckles running posterolaterally from orbits in band which ends in medial expansion at level of anterolateral teeth, similar white spots on upper face of cheliped.

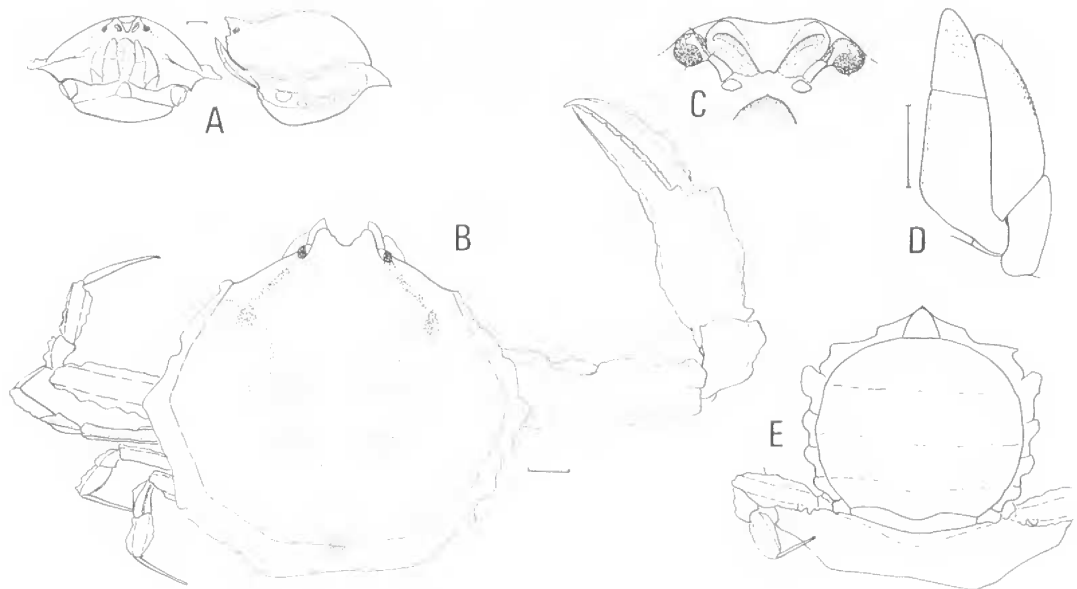


FIG. 4: *Cryptocnemus hemispheroides*. A, carapace, frontal and lateral view; B, carapace, dorsal view; C, front; D, third maxilliped; E, female abdomen. Scale divisions 1 mm.

DISCUSSION

Ihle (1918, p. 317) listed the known Indo-Pacific species of *Cryptocnemus* and (p. 286) provided a key to these species. To this list must be added the subsequently described *C. vincentianus* Hale, 1927, *C. planus* Ward, 1933, and *C. kamekii* Sakai, 1961.

The present species is similar to *C. obolus* Ortmann, 1892, in having the front very distinctly bilobate and the carapace surface smoothly hemispherical without ridges whereas in all other species of *Cryptocnemus* the front is variably produced as a single triangular or rounded lobe, and the carapace usually bears a median ridge from between the orbits to the centre of the carapace (faint ridge extending a short distance back in *C. planus*) with sometimes additional posterolaterally radiating ridges from that point. While these differences also are possibly marked enough to warrant generic separation of *C. obolus* and *C. hemispheroides* from other species of *Cryptocnemus*, examination of all species would be desirable to determine other significant distinguishing features.

C. hemispheroides differs from *C. obolus* (fide, Ortmann, 1892, p. 576, pl. 26, fig. 12; Yokoya, 1933, p. 117; Sakai, 1937, pp. 140–1; 1965, p. 45, pl. 18, fig. 2) in that the two frontal lobes are less acutely projecting and have small subsidiary lobes on their median margins; the expanded carapace edge is not produced into as large a lobe laterally, and the posterior half of this edge is not smoothly rounded but composed of five straight or even slightly concave segments meeting to form distinct angles; the dorsal crest on the anterior margin of the arm of the cheliped is much shorter, occupying only the distal half of the arm.

DISCUSSION

The 27 species of Dromiacea, Homolidea, Gymnopleura, Corystoidea and Oxystomata thus far known from this area probably represent only a small fraction of the total fauna, and only broad comparisons can be made with other areas at this time. Of these 27 species, 7 (26%) are not found outside Australia, 15 (56%) are shared with India and 18 (67%) with Japan. In contrast, of the 18 species of these groups found in Moreton Bay (see Campbell and Stephenson, 1970) 5 (28%) are not found outside Australia, 12 (67%) are shared with India but only 4 (22%) with Japan.

Only 4 (15%) of the 27 species found in the deeper water (>20 fm) off southern Queensland are also present in the predominantly shallow water (<20 fm) of Moreton Bay. Although further collecting may alter these figures it would seem that faunal composition is affected more markedly by a depth change of 20 fm than by spatial separation of some 6000 miles.

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